

**Set Name Query**

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result set

*DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ*

<u>L12</u>	l2 and L11	18	<u>L12</u>
<u>L11</u>	L6 and l9	56	<u>L11</u>
<u>L10</u>	l3 and L9	2	<u>L10</u>
<u>L9</u>	dicyandiamide or l1	11040	<u>L9</u>
<u>L8</u>	l2 and L7	18	<u>L8</u>
<u>L7</u>	l1 and L6	27	<u>L7</u>
<u>L6</u>	thidiazuron or diuron or ethephon or ethrel or (PPO near3 inhibit\$5) or acifluorfen or fomesafen or nitrofen or oxyfluorfen or oxadiazon	2829	<u>L6</u>
<u>L5</u>	l1 and L3	2	<u>L5</u>
<u>L4</u>	l1 and L3	2	<u>L4</u>
<u>L3</u>	(leaf or leaves) near5 (regrow\$3 or (grow\$3 near3 back))	61	<u>L3</u>
<u>L2</u>	defolia\$6	5095	<u>L2</u>
<u>L1</u>	nitroguanidin\$2 or cyanoguanidin\$2 or ((nitro or cyano) adj guanidine\$2)	1547	<u>L1</u>

END OF SEARCH HISTORY

## Print

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
Draw Desc	Image										

# WEST

## End of Result Set

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L5: Entry 2 of 2

File: USPT

Jan 27, 1987

DOCUMENT-IDENTIFIER: US 4639268 A

TITLE: Nitro- and cyanoguanidines as selective preemergence herbicides and plant defoliants

### Abstract Text (1):

There are provided novel nitroguanidine and cyanoguanidine compounds. A method of dessicating and defoliating plants by applying to the foliage thereof certain nitroguanidine or cyanoguanidine compounds and a method for the selective preemergence control of undesirable broadleaf weeds and grasses in the presence of graminaceous crops are disclosed.

### Brief Summary Text (1):

This invention relates to certain novel nitroguanidine and cyanoguanidine compounds. It also relates to a method of desiccating and defoliating plants, particularly malvaceous plants such as cotton, by applying to the foliage thereof an effective amount of a nitroguanidine or cyanoguanidine compound. It further relates to a method for the selective preemergence control of undesirable broadleaf weeds and grasses in the presence of graminaceous crops, by applying a herbicidally effective amount of a nitro- or cyanoguanidine to soil containing the seeds of the planted crop and seeds or other propagating organs of undesirable plants.

### Brief Summary Text (2):

Although certain nitro- and cyanoguanidines are known, to the best of our knowledge, such compounds have not been disclosed or suggested as selective preemergence herbicidal agents effective for the control of undesirable weeds and grasses in the presence of graminaceous crops or as desiccants or defoliants for cotton and other plants. Rather, some nitroguanidines are described by A. F. McKay et al., U.S. Pat. No. 2,559,085, issued July 3, 1951, as intermediates for the preparation of synthetic antibiotics, antihistamines and insecticides. Others are described by R. A. Henry et al., in U.S. Pat. No. 2,946,820, issued July 26, 1980, the preparation of high bulk density nitroguanidines with improved handling characteristics, and still others are described by L. M. Speltz, B. L. Walworth and A. D. Pavlista in the American Cyanamid Patent Application, Publication No. DE 3345-281-A; 84-159685/26; Priority Document U.S. patent application Ser. No. 451,698, Dec. 20, 1982, abandoned. The above application describes the use of nitroguanidines and cyanoguanidines as yield enhancing agents for crops such as potatoes, sugar beets, barley, wheat and even cotton. It also describes generically some .alpha.-substituted nitro- and cyanoguanidines. However, it does not specifically identify or describe the novel .alpha.-substituted nitro- and cyanoguanidines of the present invention, nor does it suggest that application of nitroguanidines and cyanoguanidines to malvaceous plants especially cotton with at least 60% open boll one to two weeks prior to harvest will provide controlled defoliation of the plants and permit easier harvesting of the crop. Furthermore, the L. M. Speltz et al. application does not disclose the use of nitroguanidines or cyanoguanidines as preemergence herbicides nor do they suggest that such compounds exhibit selectivity in graminaceous crops.

### Brief Summary Text (3):

When cotton is harvested, contamination of the seed cotton (seed plus lint) by green leaves and petioles hinders the harvesting procedure and lowers cotton lint quality by staining the lint. However, with the novel compounds and method of the present

invention, mature cotton plants can now be treated with an effective amount of a selected nitroguanidine or cyanoguanidine prior to harvest, thereby inducing the cotton leaves to fall cleanly from the plant (defoliation) prior to harvest. This facilitates an easier harvest and provides a high quality lint essentially free of chlorophyll stains.

Brief Summary Text (5):

It is therefore an object of the present invention to provide novel nitroguanidine and cyanoguanidine compounds that are highly effective as preemergence herbicides, desiccants and defoliant for plants.

Brief Summary Text (10):

The invention described herein relates to novel herbicidal and plant defoliating and/or desiccating nitro- and cyanoguanidine compounds represented by the following structural formula (I): ##STR1## wherein R.sub.1 is NO.sub.2 or CN; R.sub.2 is n-C.sub.3 H.sub.7, CH.sub.2 OCH.sub.3 or CH.sub.2 CH.dbd.CH.sub.2 ; X is hydrogen, ortho-, meta- or para-fluoro, meta-methoxy, meta-hydroxy or para-chloro; and the salts, tautomers and optical isomers thereof and the (+) or (-)-isomers of compounds having the above structure, where R.sub.1 and X are as described above and R.sub.2 is CH.sub.3, C.sub.2 H.sub.5 or CF.sub.3.

Brief Summary Text (11):

The invention also relates to a method for defoliating plants, particularly cotton, by applying to the foliage thereof a defoliatingly effective amount of a nitroguanidine or cyanoguanidine having the general structural formula (II): ##STR2## wherein R.sub.1 is NO.sub.2 or CN; R.sub.3 is allyl, CF.sub.3, CH.sub.2 OCH.sub.3 or C.sub.1 -C.sub.3 alkyl optionally substituted with OH or OCH.sub.3 ; Y is hydrogen, halogen or OR.sub.4 where R.sub.4 is hydrogen or C.sub.1 -C.sub.4 alkyl; Z is hydrogen, halogen, CH.sub.3 or CF.sub.3 ; n is an integer of 0 or 1, and the salts, tautomers and optical isomers thereof.

Brief Summary Text (13):

A preferred group of nitroguanidines and cyanoguanidines useful as selective preemergence herbicides for use in the presence of graminaceous crops has the Formula I structure, wherein R.sub.1 and X are as described above; and R.sub.2 is CH.sub.2 CH.dbd.CH.sub.2 or CH.sub.2 OCH.sub.3 ; and the salts, tautomers and optical isomers thereof.

Brief Summary Text (14):

A preferred group of nitro- and cyanoguanidine compounds which are effective as defoliating agents have the Formula II structure, wherein R.sub.1 is as described above; R.sub.3 is allyl, CF.sub.3, CH.sub.2 OCH.sub.3 or alkyl C.sub.1 -C.sub.3 ; n is 1; Y is hydrogen, Cl, Br or OCH.sub.3 ; Z is hydrogen, Br, Cl, CH.sub.3 or CF.sub.3 ; and the salts, tautomers and optical isomers thereof.

Brief Summary Text (15):

Salts of the nitro and cyanoguanidines useful as defoliant when applied in accordance with the method of the present invention, include the inorganic alkali metal, alkaline earth metal, Co, Cu, Zn, and Ag salts, together with the organic amine salts represented by the structure, .sup.+ NR.sub.a R.sub.b R.sub.c R.sub.d, wherein R.sub.a, R.sub.b, R.sub.c, and R.sub.d are each selected from hydrogen and alkyl C.sub.1 -C.sub.30 straight or branched chain and optionally substituted with one or two --OH, C.sub.3 -C.sub.6 alkenyl or C.sub.3 -C.sub.6 alkynyl groups. Preferred salts of these compounds include the sodium, calcium, magnesium, potassium, ammonium, methylamine, trimethylamine, dodecylamine, tributylamine, diisopropylamine, triethylamine, tetrabutylamine, and tallow-amine salts.

Brief Summary Text (16):

These salts are readily prepared by dissolving or dispersing the appropriate nitroguanidine or cyanoguanidine as depicted by both Formula I and Formula II above in an aqueous solution or suspension of an alkali metal hydroxide, alkaline earth metal hydroxide, organic ammonium hydroxide or the like.

Brief Summary Text (19):

Preparation of the substituted phenyl and benzyl cyanoguanidines is readily

accomplished by dissolving or dispersing the appropriately substituted aniline or benzylamine in hydrochloric acid and admixing the thus-formed solution or dispersion with an equimolar amount of sodium dicyanamide. In practice, it is generally desirable to disperse the sodium dicyanamide in water prior to admixture with the aniline solution or to disperse the sodium dicyanamide in ethoxyethanol for reaction with the benzylamine. This reaction is illustrated as follows: ##STR5## wherein Y is hydrogen, halogen, or OR.sub.4 ; R.sub.4 is hydrogen or C.sub.1 -C.sub.4 alkyl; Z is hydrogen, halogen, CH.sub.3 or CF.sub.3 ; n is an integer of 0 or 1 and R.sub.3 is allyl, CF.sub.3 or C.sub.1 -C.sub.3 alkyl optionally substituted with OH, or OCH.sub.3.

Brief Summary Text (20):

While the nitroguanidines and cyanoguanidines, effective as preemergence herbicidal agents and as defoliating agents for plants, are shown in one tautomeric form, by Formulas I and II, i.e. ##STR6## wherein R.sub.1, R.sub.2, R.sub.3, X, Y and Z are as described above; it should be recognized that these compounds may actually exist in different tautomeric forms, such as: ##STR7##

Brief Summary Text (22):

The nitro- and cyanoguanidines useful in the method of the present invention are particularly suitable for desiccating and defoliating cotton plants. In practice it is generally found that from about 0.001 to 10 kg per hectare and preferably about 0.01 to 4 kg per hectare, of a Formula I or Formula II compound, applied to the foliage of cotton as a dilute solid or liquid formulation when approximately 60% of the bolls are open and about 1 to 2 weeks before harvest will desiccate the plants, induce the plants to shed their leaves and inhibit regrowth.

Brief Summary Text (23):

The nitro- and cyanoguanidines of this invention are also useful as preemergence herbicidal agents, particularly selective herbicidal agents useful for controlling broadleaf weeds and grasses in the presence of graminaceous crops. In this use, the active ingredients are applied to soil in which the graminaceous crops have been planted. Generally, about 1.0 to 10 kg/ha and preferably about 1.0 to 4.0 kg/ha, applied as a dilute solid compositions, such as a granular formulation, dust or dust concentrate, or a liquid spray such as an aqueous dispersion or suspension of a flowable concentrate, wettable powder or emulsifiable concentrate, is effective for controlling a wide variety of broadleaf weeds and grasses, without injuring the crop.

Brief Summary Text (25):

The 2-(2-imidazolin-2-yl)pyridines and 2-(2-imidazolin-2-yl)quinolines that can be used in combination with the nitro- and cyanoguanidines of the invention include:

Brief Summary Text (59):

The nitroguanidines and cyanoguanidines of this invention may also be used in combination or conjunction with other pest control agents such as insecticidal agents, fungicides and pesticidal synergists such as piperonyl butoxide.

Brief Summary Text (60):

The insecticides contemplated for use in combination treatments with the nitroguanidines and cyanoguanidines of this invention include:

Brief Summary Text (128):

Flowable liquid concentrates can be prepared by grinding together about 40%, by weight, of the substituted nitro- or cyanoguanidine, about 0.40% colloidal magnesium aluminum silicate, about 1.50% sodium salts of polymerized alkyl naphthalene sulfonic acids, about 8.0% propylene glycol, about 0.1% ethoxylated octylphenol, about 0.1% nonylphenoxy polyethoxy ethanol, about 0.07% citric acid, about 0.06% xanthan gum, about 0.10% paraformaldehyde and about 49.77% water.

Detailed Description Text (12):

Evaluation of Nitro- and Cyanoguanidines as Cotton Defoliants Using a Leaf-Dip Bioassay

CLAIMS:

1. A method for the preemergence control of undesirable broadleaf weeds and grass plants comprising, applying to soil containing seeds or other propagating organs of said undesirable broadleaf weeds and grass plants a herbicidally effective amount of a substituted nitroguanidine or cyanoguanidine compound selected from the group consisting of ##STR14## wherein R.sub.1 is NO.sub.2 or CN; R.sub.2 is n-C.sub.3 H.sub.7, CH.sub.2 OCH.sub.3 or CH.sub.2 CH.dbd.CH.sub.2 ; X is hydrogen, o-F, m-F, p-F, m-OCH.sub.3, m-OH or p-Cl; the salts, tautomers and optical isomers thereof and the (+) or (-)-isomers of compounds having the above structure, wherein R.sub.1 and X are as described and R.sub.2 is CH.sub.3, C.sub.2 H.sub.5 or CF.sub.3.

**WEST**[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 10 of 18 returned.**☐ 1. Document ID: US 20020188136 A1

L12: Entry 1 of 18

File: PGPB

Dec 12, 2002

PGPUB-DOCUMENT-NUMBER: 20020188136

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020188136 A1

TITLE: Arylphenyl-substituted cyclic ketoenols

PUBLICATION-DATE: December 12, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Lieb, Folker	Leverkusen	KS	DE	
Fischer, Reiner	Monheim	KS	DE	
Graff, Alan	Koln		DE	
Schneider, Udo	Leverkusen		DE	
Bretschneider, Thomas	Lohmar		DE	
Erdelen, Christoph	Leichlingen		DE	
Andersch, Wolfram	Bergisch Gladbach		DE	
Drewes, Mark-Wilhelm	Langenfeld		DE	
Dollinger, Markus	Overland Park		US	
Wetcholowsky, Ingo	Cond. Estancia Marambaia		BR	
Myers, Randy Allen	Overland Park		US	

US-CL-CURRENT: [548/368.4](#); [548/544](#), [549/313](#), [549/62](#)

<a href="#">Full</a>	<a href="#">Title</a>	<a href="#">Citation</a>	<a href="#">Front</a>	<a href="#">Review</a>	<a href="#">Classification</a>	<a href="#">Date</a>	<a href="#">Reference</a>	<a href="#">Sequences</a>	<a href="#">Attachments</a>
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[KIMC](#)☐ 2. Document ID: US 20020016459 A1

L12: Entry 2 of 18

File: PGPB

Feb 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020016459

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020016459 A1

TITLE: Substituted 2-amino-4-alkylamino-1,3,5-triazines as herbicides

PUBLICATION-DATE: February 7, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Riebel, Hans-Jochem	Wuppertal	KS	DE	
Lehr, Stefan	Leverkusen		DE	
Stelzer, Uwe	Burscheid		DE	
Watanabe, Yukiyoshi	Oyama-shi		JP	
Dollinger, Markus	Kansas		US	

US-CL-CURRENT: 544/206; 544/207

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 3. Document ID: US 6455472 B1

L12: Entry 3 of 18

File: USPT

Sep 24, 2002

US-PAT-NO: 6455472

DOCUMENT-IDENTIFIER: US 6455472 B1

TITLE: Phenyl-substituted cyclic enaminones

DATE-ISSUED: September 24, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fischer; Reiner	Monheim			DE
Wischnat; Ralf	Koln			DE
Drewes; Mark Wilhelm	Langenfeld			DE
Dollinger; Markus	Leverkusen			DE
Erdelen; Christoph	Leichlingen			DE
Feucht; Dieter	Monheim			DE
Wetcholowsky; Ingo	Vinhedo			BR
Wachendorff-Neumann; Ulrike	Neuwied			DE
Philipp; Ulrich	Koln			DE
Rauch; Olga-Tatjana	Kronberg			DE

US-CL-CURRENT: 504/138; 504/130, 540/610, 546/238, 548/566

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 4. Document ID: US 6440903 B1

L12: Entry 4 of 18

File: USPT

Aug 27, 2002

US-PAT-NO: 6440903

DOCUMENT-IDENTIFIER: US 6440903 B1

TITLE: Substituted 2,4-diamino-1,3,5-triazines as herbicides

DATE-ISSUED: August 27, 2002



## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Riebel; Hans-Jochem	Wuppertal			DE
Lehr; Stefan	Leverkusen			DE
Stelzer; Uwe	Burscheid			DE
Watanabe; Yuki Yoshi	Oyama			JP
Dollinger; Markus	Overland Park	KS		
Ito; Seishi	Oyama			JP
Goto; Toshio	Kokubunji-machi			JP
Yanagi; Akihiko	Oyama			JP

US-CL-CURRENT: 504/232; 504/233, 504/234, 544/206, 544/208

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 5. Document ID: US 6420313 B1

L12: Entry 5 of 18

File: USPT

Jul 16, 2002

US-PAT-NO: 6420313

DOCUMENT-IDENTIFIER: US 6420313 B1

TITLE: Thienylalkylamino-1,3,5-triazines and the use thereof as herbicides

DATE-ISSUED: July 16, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kirsten; Rolf	Monheim			DE
Riebel; Hans-Jochem	Selters			DE
Lehr; Stefan	Langenfeld			DE
Voigt; Katharina	Monheim			DE
Kather; Kristian	Monheim			DE
Drewes; Mark Wilhelm	Langenfeld			DE
Dollinger; Markus	Overland Park	KS		
Wetcholowsky; Ingo	Vinhedo			BR
Watanabe; Yuki Yoshi	Oyama			JP
Goto; Toshio	Kokubunji-machi			JP

US-CL-CURRENT: 504/230; 544/207, 544/209

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 6. Document ID: US 6417370 B1

L12: Entry 6 of 18

File: USPT

Jul 9, 2002

US-PAT-NO: 6417370

DOCUMENT-IDENTIFIER: US 6417370 B1

TITLE: Arylphenyl-substituted cyclic keto-enols

DATE-ISSUED: July 9, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lieb; Folker	Leverkusen			DE
Fischer; Reiner	Monheim			DE
Graff; Alan	Koln			DE
Schneider; Udo	Leverkusen			DE
Bretschneider; Thomas	Lohmar			DE
Erdelen; Christoph	Leichlingen			DE
Andersch; Wolfram	Bergisch Gladbach			DE
Drewes; Mark-Wilhelm	Langenfeld			DE
Dollinger; Markus	Overland Park	KS		
Wetcholowsky; Ingo	Cond. Estancia Marambaia			BR
Myers; Randy Allen	Overland Park	KS		

US-CL-CURRENT: 548/408; 548/543, 548/544, 548/577

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KWIC
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☐ 7. Document ID: US 6407041 B1

L12: Entry 7 of 18

File: USPT

Jun 18, 2002

US-PAT-NO: 6407041

DOCUMENT-IDENTIFIER: US 6407041 B1

TITLE: Substituted 2,4-diamino-1,3,5-triazines

DATE-ISSUED: June 18, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Voigt; Katharina	Monheim			DE
Riebel; Hans-Jochem	Selters			DE
Lehr; Stefan	Langenfeld			DE
Lender; Andreas	Wuppertal			DE
Kirsten; Rolf	Monheim			DE
Dollinger; Markus	Overland Park	KS		
Drewes; Mark Wilhelm	Langenfeld			DE
Wetcholowsky; Ingo	Estancia Marambaia			BR
Watanabe; Yuki Yoshi	Oyama			JP
Goto; Toshio	Tochigi			JP
Myers; Randy Allen	Overland Park	KS		

US-CL-CURRENT: 504/230; 504/232, 504/233, 504/234, 544/206, 544/207, 544/208,  
544/209

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 8. Document ID: US 6403794 B2

L12: Entry 8 of 18

File: USPT

Jun 11, 2002

US-PAT-NO: 6403794

DOCUMENT-IDENTIFIER: US 6403794 B2

TITLE: Substituted 2-amino-4-alkylamino-1,3,5-triazines as herbicides

DATE-ISSUED: June 11, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Riebel; Hans-Jochem	Wuppertal			DE
Lehr; Stefan	Leverkusen			DE
Stelzer; Uwe	Burscheid			DE
Watanabe; Yukiyoshi	Oyama			JP
Dollinger; Markus	Overland Park	KS		

US-CL-CURRENT: 544/242; 544/298, 546/69, 546/74, 549/479, 549/491, 558/391, 560/34, 564/234

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 9. Document ID: US 6399541 B1

L12: Entry 9 of 18

File: USPT

Jun 4, 2002

US-PAT-NO: 6399541

DOCUMENT-IDENTIFIER: US 6399541 B1

TITLE: Substituted 2,4-diamino-1,3,5-triazines as herbicides

DATE-ISSUED: June 4, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Riebel; Hans-Jochem	Wuppertal			DE
Lehr; Stefan	Langenfeld			DE
Stelzer; Uwe	Burscheid			DE
Dollinger; Markus	Overland Park	KS		
Santel; Hans-Joachim	Leawood	KS		
Dahmen; Peter	Neuss			DE
Goto; Toshio	Kokubunji-machi			JP
Watanabe; Yukiyoshi	Oyama			JP

US-CL-CURRENT: 504/234; 504/232, 504/233, 544/206

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 10. Document ID: US 6358886 B1

L12: Entry 10 of 18

File: USPT

Mar 19, 2002

US-PAT-NO: 6358886

DOCUMENT-IDENTIFIER: US 6358886 B1

TITLE: 6-Substituted 2,4-diamino-1,3,5-triazine derivatives having at least two asymmetrically substituted carbon atoms, the production thereof, and their use as herbicides

DATE-ISSUED: March 19, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Riebel; Hans-Jochem	Selters			DE
Lehr; Stefan	Langenfeld			DE
Voigt; Katharina	Monheim			DE
Dollinger; Markus	Overland Park	KS		
Drewes; Mark Wilhelm	Langenfeld			DE
Wetcholowsky; Ingo	Cond. Estancia Marambaia			DE
Myers; Randy Allen	Overland Park	KS		
Watanabe; Yuki Yoshi	Oyama			JP
Goto; Toshio	Kokubunji-machi			JP

US-CL-CURRENT: 504/232; 504/233, 544/206, 544/207

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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L12: Entry 11 of 18

File: USPT

Feb 19, 2002

US-PAT-NO: 6348435

DOCUMENT-IDENTIFIER: US 6348435 B1

TITLE: Substituted 2,4-diamino-1,3,5-triazine and their use as herbicides

DATE-ISSUED: February 19, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Riebel; Hans-Jochem	Wuppertal			DE
Lehr; Stefan	Langenfeld			DE
Stelzer; Uwe	Burscheid			DE
Dollinger; Markus	Overland Park	KS		
Drewes; Mark Wilhelm	Langenfeld			DE
Meyers; Randy Allen	Overland Park	KS		

US-CL-CURRENT: [504/230](#); [544/207](#)

<a href="#">Full</a>	<a href="#">Title</a>	<a href="#">Citation</a>	<a href="#">Front</a>	<a href="#">Review</a>	<a href="#">Classification</a>	<a href="#">Date</a>	<a href="#">Reference</a>	<a href="#">Sequences</a>	<a href="#">Attachments</a>	<a href="#">KMC</a>
<a href="#">Draw</a>	<a href="#">Desc</a>	<a href="#">Image</a>								

☐ 12. Document ID: US 6346503 B1

L12: Entry 12 of 18

File: USPT

Feb 12, 2002

US-PAT-NO: 6346503

DOCUMENT-IDENTIFIER: US 6346503 B1

TITLE: Substituted 2-amino-4-alkylamino-1,3,5-triazines as herbicides

DATE-ISSUED: February 12, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Riebel; Hans-Jochem	Wuppertal			DE
Lehr; Stefan	Leverkusen			DE
Stelzer; Uwe	Burscheid			DE
Watanbe; Yuki Yoshi	Oyama			JP
Dollinger; Markus	Overland Park	KS		

US-CL-CURRENT: [504/234](#); [504/232](#), [544/206](#), [544/207](#), [544/208](#), [544/209](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☐ 13. Document ID: US 6284710 B1

L12: Entry 13 of 18

File: USPT

Sep 4, 2001

US-PAT-NO: 6284710

DOCUMENT-IDENTIFIER: US 6284710 B1

TITLE: Substituting 2-amino-4-alkylamino-1,3,5-triazine as herbicide

DATE-ISSUED: September 4, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Riebel; Hans-Jochem	Wuppertal			DE
Lehr; Stefan	Leverkusen			DE
Stelzer; Uwe	Burscheid			DE
Watanabe; Yuki Yoshi	Oyama			JP
Dollinger; Markus	Overland Park	KS		
Dahmen; Peter	Neuss			DE
Ito; Seishi	Oyama			JP
Goto; Toshio	Kokubunji-machi			JP
Yanagi; Akihiko	Oyama			JP

US-CL-CURRENT: 504/234; 544/206, 544/207, 544/208, 544/209

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 14. Document ID: US 6271178 B1

L12: Entry 14 of 18

File: USPT

Aug 7, 2001

US-PAT-NO: 6271178

DOCUMENT-IDENTIFIER: US 6271178 B1

TITLE: Substituted 2,4-diamino-1,3,5-triazine as herbicide

DATE-ISSUED: August 7, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Riebel; Hans-Jochem	Wuppertal			DE
Lehr; Stefan	Leverkusen			DE
Stelzer; Uwe	Burscheid			DE
Watanabe; Yuki Yoshi	Oyama			JP
Dollinger; Markus	Overland Park	KS		
Goto; Toshio	Kokubunji-machi			JP

US-CL-CURRENT: 504/232; 504/230, 504/233, 504/234, 544/206, 544/207, 544/208,

544/209, 544/210

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 15. Document ID: US 5976212 A

L12: Entry 15 of 18

File: USPT

Nov 2, 1999

US-PAT-NO: 5976212

DOCUMENT-IDENTIFIER: US 5976212 A

TITLE: Method and packaging utilizing calcium cyanamide for soil treatment

DATE-ISSUED: November 2, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hartmann; Richard O. W.	Portland	OR	97201	

US-CL-CURRENT: 71/55; 423/368, 71/28

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☒ 16. Document ID: US 5022917 A

L12: Entry 16 of 18

File: USPT

Jun 11, 1991

US-PAT-NO: 5022917

DOCUMENT-IDENTIFIER: US 5022917 A

TITLE: Liquid herbicidally active compositions

DATE-ISSUED: June 11, 1991

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Allan; G. Graham	Seattle	WA		

US-CL-CURRENT: 504/348; 504/101, 504/300, 504/323, 504/324, 504/345, 504/347, 504/362

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								

KMC

☐ 17. Document ID: US 4988379 A

L12: Entry 17 of 18

File: USPT

Jan 29, 1991

US-PAT-NO: 4988379

DOCUMENT-IDENTIFIER: US 4988379 A

TITLE: Sulphonyliso(thio)urea derivatives as herbicides

DATE-ISSUED: January 29, 1991

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Diehr; Hans-Joachim	Wuppertal			DE
Fest; Christa	Wuppertal			DE
Kirsten; Rolf	Monheim			DE
Kluth; Joachim	Langenfeld			DE
Muller; Klaus-Helmut	Duesseldorf			DE
Pfister; Theodor	Monheim			DE
Priesnitz; Uwe	Solingen			DE
Riebel; Hans-Jochem	Wuppertal			DE
Roy; Wolfgang	Langenfeld			DE
Santel; Hans-Joachim	Cologne			DE
Schmidt; Robert R.	Bergisch Gladbach			DE
Eue; Ludwig	Leverkusen			DE

US-CL-CURRENT: 504/191; 504/230, 504/231, 504/234, 534/847, 544/181, 544/211

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw	Desc	Image								

☐ 18. Document ID: US 4840661 A

L12: Entry 18 of 18

File: USPT

Jun 20, 1989

US-PAT-NO: 4840661

DOCUMENT-IDENTIFIER: US 4840661 A

TITLE: Sulphonyliso(thio)urea derivatives and herbicidal use thereof

DATE-ISSUED: June 20, 1989

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Diehr; Hans-Joachim	Wuppertal			DE
Fest; Christa	Wuppertal			DE
Kristen; Rolf	Monheim			DE
Kluth; Joachim	Langenfeld			DE
Muller; Klaus-Helmut	Duesseldorf			DE
Pfister; Theodor	Monheim			DE
Priesnitz; Uwe	Solingen			DE
Riebel; Hans-Jochem	Wuppertal			DE
Roy; Wolfgang	Langenfeld			DE
Santel; Hans-Joachim	Cologne			DE
Schmidt; Robert R.	Bergisch Gladbach			DE
Eue; Ludwig	Leverkusen			DE

US-CL-CURRENT: 504/191; 504/193, 504/197, 504/230, 504/231, 504/239, 504/242,  
504/243, 504/247, 504/260, 504/270, 504/284, 544/253, 544/296, 544/310, 544/311,  
544/317, 544/319, 544/320, 544/321, 544/323, 544/324, 544/327, 544/331, 544/332,



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L12: Entry 16 of 18

File: USPT

Jun 11, 1991

DOCUMENT-IDENTIFIER: US 5022917 A

TITLE: Liquid herbicidally active compositions

Brief Summary Text (7):

Melamine and its hydrolysis products, ammeline, ammelide, and cyanuric acid, and as well the related material dicyandiamide (cyanoguanidine), have often been considered as potential sources of nitrogen for incorporation in fertilizer compositions or for utilization as nitrogen sources per se. Melamine and dicyandiamide each have a nitrogen content of 66.67%; two-thirds of their weight is nitrogen. When used as fertilizer materials, they provide high percentages of nitrogen per unit weight applied.

Brief Summary Text (21):

One broad concept of the invention is that a biologically active material (BAM), when made up in intimate admixture with a high nitrogen source compound such as melamine, for example, into a liquid, preferably a sprayable liquid formulation, and applied appropriately, exhibits more prolonged and/or more effective activity. In place of melamine, other poorly soluble high nitrogen sources may be used, such as benzoguanamine, dicyandiamide, ammeline, ammelide, cyanuric acid, mixtures thereof, their and melamine's physiologically acceptable inorganic and organic salts, and mixtures thereof. Melamine and its salts are the preferred nitrogen source materials. These nitrogen sources generally are compounds in crystalline or powdered form.

Brief Summary Text (25):

In one preferred, broad embodiment of the invention, the sprayable formulation comprises at least one biologically active material; a nitrogenous compound selected from the group consisting of melamine, benzoguanamine, dicyandiamide, ammeline, ammelide, cyanuric acid, mixtures thereof, and the physiologically acceptable salts thereof, both organic and inorganic; and a liquid vehicle in which these said components are dissolved and/or suspended, to form a liquid, preferably sprayable composition. The nitrogenous compound and the biologically active material are preferably present in such proportions that the ratio is at least 3:1, by weight.

Brief Summary Text (26):

In a more specific preferred embodiment of the invention, the liquid, preferably sprayable formulation is in the form of a liquid fertilizer composition having an aqueous vehicle. There are dissolved in the aqueous vehicle one or more sources of N, P, and K fertilizer values. The N source comprises at least one readily water soluble N source and at least one poorly water soluble high N source having a water solubility at 20.degree. C., at pH 7, not above 5 grams per 100 grams of water. One useful such high N source is selected from the group consisting of melamine, benzoguanamine, dicyandiamide, ammeline, ammelide, cyanuric acid, mixtures thereof, and the physiologically acceptable salts thereof, both organic and inorganic. In addition, the composition may contain at least one emulsifying, suspending, or stabilizing agent, or it may be mechanically agitated. It also contains at least one biologically active material at a concentration that is useful, upon application of the liquid fertilizer, to perform its intended function. Following application of the composition to a substrate, such as the soil, it is characterized by more prolonged activity of the biologically active material than would be the case of it alone had been applied.

Brief Summary Text (44):

The herbicides that are selected for use may be those that become effective through contact and, as well, those that are taken up from the soil. Suitable herbicides include defoliants, desiccants, eradicants, systemics and selective herbicides. The invention is useful for herbicides that are applied preplanting, after planting but pre-emergence, "cracking" types, which operate on the plants as they emerge from the soil, and post-emergent herbicides that are effective after there has been extensive emergence.

Brief Summary Text (48):

The arsenicals include cacodylic acid and the salts of monomethyl- and dimethylarsinic acids. The arsenical herbicides based on cacodylic acid are defoliating or dessicating contact herbicides. The salts of the monomethylarsinic acids have lower contact toxicity and act through absorption.

Brief Summary Text (82):

The preferred high nitrogen material is particulate melamine. Experimental evidence demonstrates its efficacy with certain herbicides in making them more effective. It is believed that the nitrogen source may also be selected from the group consisting of melamine, benzoguanamine (2,4-diamino-6-phenyl-s-triazine), dicyandiamide, ammeline, ammelide, cyanuric acid, mixtures thereof, their inorganic salts, their organic salts, and mixtures thereof. These salts are preferably selected from the group consisting of the hydrochloride, hydriodide, metaphosphate, nitrate, orthophosphate, orthophosphate dihydrate, pyrophosphate, potassium dihydrogen phosphate, bisulfate, and sulfite, and, as well, the cyanurate, chloroacetate, and formate salts, and mixtures thereof. All of these materials are characterized by poor or slight solubility in pH 7 water at 20.degree. C., and by slow conversion in the soil to a form in which the nitrogen is useful to plant life growing in the soil. The useful salts also include those where the associated ions are substantially or entirely comprised of one or more of the nutrient elements recognized by the American Association of Plant Food Control Officials, such as N, P, K, S, Ca, Fe, Zn and B, among others, and represented by such compounds as melamine phosphate, nitrate, or sulfate; melamine borate; and ureidomelamine.

Brief Summary Paragraph Table (2):

TABLE 1	Material Solubility (g/100 g)	
	Melamine	0.50 Benzoguanamine 0.06 (22.degree. C.)
<u>Dicyandiamide</u>	2.26 (at 13.degree. C.)	<u>Ammeline</u> 0.008 <u>Ammelide</u> less than 0.008
Cyanuric Acid	0.27 Melamine Nitrate	0.85 Ammonium Nitrate 192 Ammonium Sulfate 75.4
Diammonium Phosphate	131 (at 15.degree.)	Potassium Acid Sulfate 51.4 Potassium Sulfate 11.1 Urea 119.3 (at 25.degree. C.)

Detailed Description Text (9):

The liquid suspension fertilizer is useful as a vehicle for oxadiazon 50WP, sold under the trademark Ronstar.RTM. as a herbicide for pre-emergent grass control. Ordinarily this herbicide is recommended for application at 1 to 2 lb of the active ingredient per acre. When incorporated in the liquid suspension fertilizer above, application at the low end of the recommended range generally appears to be appropriate.

Detailed Description Text (108):

Among those herbicides that are preferred for use by incorporation in melamine/urea granules, for subsequent mixing with water to make a sprayable liquid formulation, the following are mentioned: trifluralin, .alpha.,.alpha.,.alpha.-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine; dicamba, 3,6-dichloro-o-anisic acid; fluometuron, 1,1-dimethyl-3-(.alpha.,.alpha.,.alpha.-trifluoro-m-tolyl)urea; fluorodifen, p-nitrophenyl .alpha.,.alpha.,.alpha.-trifluoro-2-nitro-p-tolyl ether; linuron, 3-(3,4-dichlorophenyl)-1-methoxy-1-methylurea; oxadiazon, 2-tert-butyl-4-(2,4-dichloro-5-isopropoxyphenyl)-.DELTA..sup.2 -1,3,4-oxadiazolin-5-one; paraquat, 1,1'-dimethyl-4,4'-bipyridinium ion [as dichloride salts]; atrazine, 2-chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine; barban, 4-chloro-2-butynyl-m-chlorocarbanilate; and cyanazine, 2-[[4-chloro-6-(ethylamino)-s-triazin-2-yl]amino]-2-methylpropionitrile.

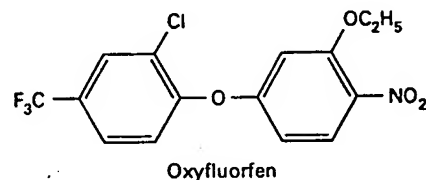
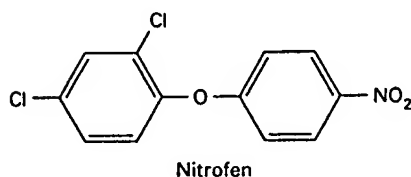
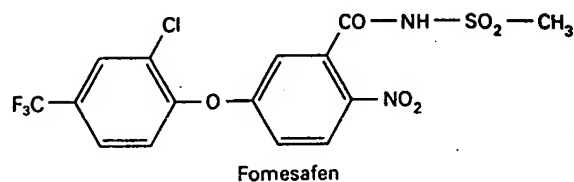
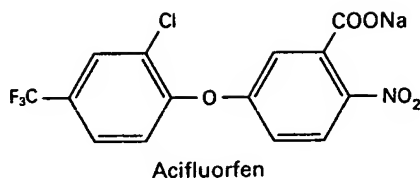
Detailed Description Paragraph Table (3):


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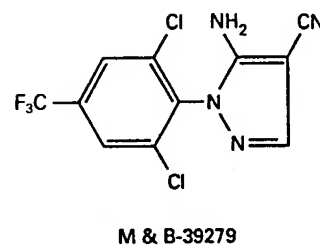
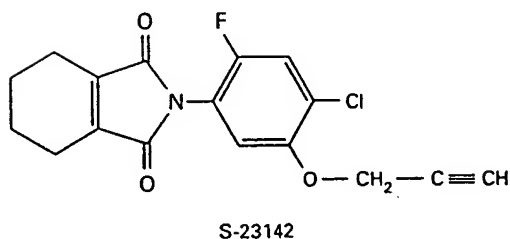
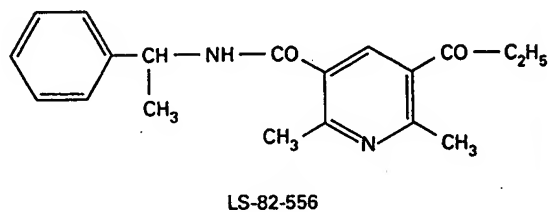
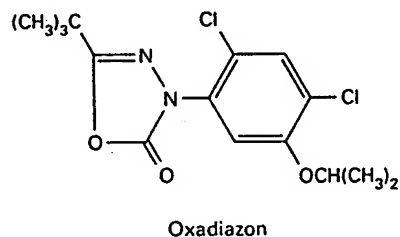
A. Herbicide Formulations - Urea Binder  
 5A1 Melamine 78 g Urea 20 g  
 2,4-dichlorophenoxybutyric acid (2,4-DB) 2 g 5A2 Melamine 78 g Urea 20 g Treflan  
 .RTM. brand of 2 g trifluralin (.alpha.,.alpha.,.alpha.-trifluoro-2,6-dinitro-N,N-  
 dipropyl-p-toluidine) 5A3 Melamine 78 g Urea 20 g Dicamba 2 g (3,6-dichloro-o-anisic  
 acid) 5A4 Melamine 63.3 pts. Urea 31.6 pts Cotoran .RTM. brand of 4 pts. (as  
 received) fluometuron (1,1-dimethyl-3-(.alpha.,.alpha.,.alpha.-  
 trifluoro-m-tolyl)urea) (80 wt. %) 5A5 Melamine 63.3 pts Urea 31.6 pts. Dacthal  
 .RTM. brand of 20 pts. (as received) DCPA (dimethyl tetrachloroterephthalate) (75  
 wt. %) 5A6 Melamine 63.3 pts. Urea 31.6 pts Lorox .RTM. brand of 5 pts. (as  
 received) linuron (3-(3,4-dichlorophenyl)-1-methoxy- 1-methylurea); or,  
 (N'-(3,4-dichlorophenyl)-N- methoxy-N-methylurea)) (50 wt. %) 5A7 Melamine 63.3 pts.  
 Urea 31.6 pts. Prowl .RTM. brand of 5.1 pts. (as received)  
 N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine) about 1.68 pts. active ingredient) 5A8  
 Melamine 63.3 pts. Urea 31.6 pts. Basalin .RTM. brand of 5.1 pts. (as received)  
 N-(2-chloroethyl)-.alpha.,.alpha.,.alpha.-trifluoro-2,6-dinitro- N-propyl-p  
 toluidine (4 lb/gallon) (about 2.44 pts. active ingredient) 5A9 Melamine 64 pts.  
 Urea 32 pts. Ronstar .RTM. brand of 8 pts. (as received) oxadiazon  
 (2-tert-butyl-4-(2,4-dichloro-5- isopropoxyphenyl)-.DELTA..sup.2  
 -1,3,4-oxadiazolin-5-one) 5A10 Melamine 64 pts. Urea 32 pts. Dual .RTM. brand of 4  
 pts. (as received) metolachlor (2-chloro-6'-ethyl-N-(2-methyl-  
 1-methylethyl)acet-o-toluidide) 5A11 Melamine 63.3 pts. Urea 31.6 pts. Aatrex .RTM.  
 brand of 5 pts. (as received) atrazine(2-chloro-4(ethylamino)-6-(isopropyl-  
 amino)-s-triazine) (80 wt. %) 5A12 Melamine 63.3 pts. Urea 31.6 pts. Bladex .RTM.  
 brand of 5 pts. (as received) cyanazine (2-[[4-chloro-6-(ethylamino)-s-  
 triazin-2-yl]amino]-2-methylpropionitrile) (80 wt. %) 5A13 Melamine 63.3 pts. Urea  
 31.6 pts. Protham 6 pts. (isopropyl carbanilate)

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## Group 1:



## Group 2:



**Figure 8.6** Selected structures of nitrodiphenylether herbicides (Group 1) and of similarly acting herbicides (Group 2).

sequentially acting biosynthetic enzymes are supposedly organized in a multienzyme complex from which the intermediates do not become free (i.e., they are not released from the enzyme complex). After herbicidal inhibition of PPG-oxidase, the substrate protoporphyrinogen IX apparently diffuses out of the enzyme site and is then subject to nonenzymatic oxidative aromatization to PPX. However,

PPD 5